

REMARKS

Reconsideration of the application in view of the foregoing amendments and the following remarks is respectfully requested.

Status of the Claims

Claims 1-23 are pending in the application. Claims 1-19, 22 and 23 were rejected based on prior art. Claims 20 and 21 were found to contain allowable subject matter, but were rejected because they depend from rejected base claims. Claims 1 and 3 have been amended by this response.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-3, 9-13 and 15 were rejected under 35 U.S.C. § 102 as being identically disclosed in U.S. Patent No. 5,980,225 of Sommer. In particular, the Examiner asserted that each limitation in these claims could be found in the Sommer patent.

Claim Rejections Under 35 U.S.C. § 103

Claims 4-8, 14, 16-19, 22 and 23 were rejected under 35 U.S.C. § 103 as being obvious and unpatentable over the Sommer patent in view of U.S. Patent No. 5,678,986 of Terauchi. In making this rejection the Examiner conceded that Sommer does not disclose a rotor mounted with an end cap on the shaft carrier, a bearing point for the rotor present on the opposite outside of the shaft carrier, a first bearing point and the rotor bearing point in the same axial plane, and the first bearing point being on the outside of the shaft carrier and consisting of a plurality of bearings. The Examiner alleges that these features are shown by Terauchi.

Argument

As defined by amended claim 1, the present invention is directed to a pump 10 with a rotor 70, which is fixed in terms of rotation on a drive shaft 60 connectable to a motor drive. The rotor 70 has a radially projecting rotor collar 120 running around it in a wavy manner, and a rotor hub 74. The rotor hub 74 surrounds a projecting end region 76 of the drive shaft. The pump includes delimiting faces that delimit the rotor collar 120 on both sides in the axial direction and leave a

pumping duct 124 between them. The pump also has an inlet 152 and an outlet for the pumping duct. An axially adjustable sealing slide bearing 182 acts to seal the rotor collar on both sides in the axial direction and subdivide the pumping duct between the inlet and the outlet. A first bearing 80, 92 supports the drive shaft at the projecting end region 76 of the drive shaft within a clear space region *in the axial direction occupied by the rotor collar*. This bearing absorbs radial and axial forces.

As defined in claim 3, the first bearing is mounted in a shaft carrier 50 that projects from the rear wall of the pump into the clear space. As a result, the overall length of the pump is reduced and the pump can better withstand radial and axial forces on the rotor when pumping thick fluids.

In rejecting claim 1 the Examiner relies on U.S. Patent No 5,980,255 of Sommers (the "Sommers patent"). Somers has a rotor 80 mounted on a shaft 81 in an operating chamber 24 defined by a wall 66. The shaft 81 is in turn mounted in a bearing sleeve 43 that projects from a wall 38 away from the operating chamber 24. A bearing sleeve 173 penetrates the wall 66 and supports the shaft 81 for rotation. The free end of the shaft is mounted in a sliding bearing ring 160.

The Examiner contends that Sommers shows "a first bearing point for the drive shaft (169), for the supporting mounting of the drive shaft in the radial direction, is present within the clear space region occupied in the axial direction by the rotor (Fig. 3)." However, Sommer fails to disclose its bearings being at the axial position of the rotor collar, i.e., the pump element 90, as required by amended claim 1. Instead, Sommer's bearings 166, 168 and 169 are axially to the right of the element 90 as shown in Fig. 3. This increases the size of the motor.

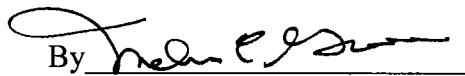
With regard to claims 4-8, 14, 16-19, 22 and 23, the Examiner concedes that Sommer "fails to disclose the rotor mounted with an end cap on the shaft carrier, a bearing point for the rotor is present on the opposite outside of the shaft carrier, the first bearing point and the rotor bearing point are in the same axial plane, the first bearing point being on the outside of the shaft carrier, consisting of a plurality of bearings." To compensate for these missing features, the Examiner relies on U.S. Patent No. 5,678,986 of Terauchi (the "Terauchi patent"). However, Terauchi fails to disclose a first bearing in the clear space at the axial position of rotor collar. Thus, it fails to disclose the missing element of the Sommer patent.

Since all of the claims depend directly or indirectly on claim 1, and claim 1 is clearly distinguishable over the prior art, all of the claims are patentable.

In view of the above amendment, applicant believes the pending application is in condition for allowance. If there are any other issues remaining which the Examiner believes could be resolved through a Supplemental Response or an Examiner's Amendment, the Examiner is requested to contact the undersigned at the telephone number indicated below.

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Respectfully submitted,

By 

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